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09/541,187	04/03/2000	Abdul-Karim Lakhani	AI-8	4916

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EXAMINER	
RAMAN, USHA	

ART UNIT	PAPER NUMBER
2616	

DATE MAILED: 12/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/541,187	LAKHANI, ABDUL-KARIM	
	Examiner	Art Unit	
	Usha Raman	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 July 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17,21-25,27-32 and 38-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17,21-25,27-32 and 38-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Arguments

1. Applicant's arguments with respect to claims 9 and 21 have been considered but are moot in view of the new ground(s) of rejection.

2. Applicant has stated intention to cancel claims 42-45. However, the status indicators of claims 42-45 have not indicated that the claims are canceled. Therefore, examiner has maintained rejection on claims 42-45.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Bodeep et al. (EP 0 695 092).

In regards to claim 42, Bodeep's cable system includes a down-converter or a "high to low converter" at the feeder line ends. Note reference numbers 262 and 263 in figure 2 and description column 5 line 58 and column 6, lines 1-4.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-3, 7, and 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art in view of Bodeep et al. (EP 0 695 092 A1).

In regards to claim 1 applicant's admitted prior art describes a cable system comprising a major trunk, including a plurality of feeder lines, wherein each of the feeder lines is connected between a node in the trunk and a feeder line end. The feeder lines include a plurality of bi-directional amplifiers and taps disposed there along, and a two-way communication device (namely a set top box) connected to each of the taps. The bi-directional amplifiers are configured to pass only the signals from head end to the two-way communication devices in a high frequency band in a forward direction and pass only the return signals in a low frequency band to head end.

The applicant's admitted prior art lacks a feeder line end comprising a receiver for receiving transmission in high frequency band and means for converting the high frequency band return signals to a low frequency band and applying the signals in the low frequency band to the corresponding feeder line end. Furthermore, the prior art system's two-way communication device lacks the capability of both receiving and transmitting signals in a high frequency band. Therefore the prior art cable system is susceptible to high ingress noise levels in the return path arising from the cable drops and other in house wiring.

Bodeep teaches a method of clearing ingress noise in return signals by transmitting the return signals from end user units to a feeder line end (a mini

fiber node that is deployed in the furthest downstream location on cable 201) over a downstream path in high frequency (B2b). The feeder line end comprises a receiver and converter means, which receives the return signals, down-converts the received signal and retransmits the down-converted signals to the head end. The end user unit is further adapted for receiving signals in high frequency band and transmitting return signals at a higher frequency (i.e. B2b frequency band that is above 30MHz) than the conventional low frequency band of 5-40 MHz where majority of the ingress noise lies. Note reference numbers 262 and 263 in figure 2 and relevant descriptions in column 5, lines 5-22 and line 58 and column 6, lines 1-4 and lines 21-25 of Bodeep et al.

It would have been obvious to one of ordinary skill at the time of invention to modify applicant's prior art system with the teachings of Bodeep et al. by transmitting the return signals from an end user unit at a high frequency band, in a downstream path to a feeder line end (MFN), where the return signal is received, filtered, down-converted to a previously assigned low frequency band (5-40 MHz) and retransmitted back to the head end over the low frequency band. The motivation would be to reduce ingress noise generated in taps and subscriber homes by deploying only one ingress-noise filtering system per feeder line, and thereby minimizing cost of deployment.

In regards to claim 2, the modified system comprises an RF amplifier (264) for amplifying the down-converted signals before transmission. Note figure 2 and description in column 5, line 11 in Bodeep et al.

In regards to claim 3,the modified system comprises a two way communications device (EU) for transmitting return signals in a high frequency (i.e. above 30 MHz, therefore higher frequency than conventional return signal spectrum of 5-40 MHz) and receiving signals in high frequency from the head end. Note column 6, lines 21-25 in Bodeep et al.

In regards to claim 7 the two-way communication device in the modified system is a set top box (as disclosed by applicant's prior art system).

In regards to claim 13, applicant's admitted prior art cable system includes a cable head end and a major trunk, the trunk having at least one tap there along, at least one feeder line is connected between one of the taps and a feeder line end, the feeder line including at least one set top box.

The set top box of the prior art system is not configured to transmit and receive signals in different portions of a high frequency band.

Bodeep teaches a cable system, where the set top box is configured to receive downstream signals in a high frequency band as well as transmit return signals in a different portion (B2b in fig 2 and column 6, lines 21-25) of the high frequencyband. Bodeep teaches transmitting return signal at a high frequency band in order to minimize ingress noise in the return signals (see column 6, lines 21-25). It would have been obvious to modify the prior art cable system with Bodeep's two-way communication device that is capable of receiving and transmitting signals in different portions of a high frequency band. The

motivation would be to reduce ingress noise in the return signals by transmitting the return signal at a higher frequency band.

In regards to claim 14, the modified system's head end is configured to receive signals only in a low frequency band (5-40 MHz) and transmit signals in a high frequency band (50-750) (as disclosed by applicant's admitted prior art)

In regards to claims 15, the modified system discloses end units transmitting return path signals in a frequency band, B2b (above 30 MHz), which is a non-overlapping with the other downstream frequency bands. Note Bodeep: column 6, lines 21-25 and figure 2 frequency spectrum. The B2b band therefore forms a "notch" above the conventional downstream frequency band. Furthermore, the applicant has not disclosed any specific advantage of "notching" out a portion of the existing downstream frequency band to transmit the upstream signals from the set top boxes, rather than transmitting above the downstream frequency band. Therefore, it would have been a matter of design choice to notch out a portion of the downstream band instead of transmitting at a frequency outside the conventional downstream frequency band, as long as the frequency bands for the upstream and the down stream signals remain mutually exclusive for non-interfering transmission.

In regards to claims 16 and 17, the modified system teaches transmitting return signals from the end user units over a downstream path to a feeder line end (MFN). The return signals are transmitted over a non-overlapping frequency from the downstream signals transmitted from the cable head end, therefore the

return signals are transmitted in a notched out portion of the frequency spectrum. The return signals are received downstream by the feeder line end (**MFN**), where it is down-converted and retransmitted to the head end, as discussed in claim 1 above.

7. Claims 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art in view of Bodeep et al. (EP 0 695 092 A1) as applied to claim 1, above, and further in view of McAlear (US Pat. 6,598,232).

The modified cable system discloses a feeder line including an auxiliary feeder line (as disclosed by applicant's prior art system). The modified system lacks a band stop filter in the auxiliary feeder line. McAlear teaches the step of using a band block filter placed on a feeder line near a junction to a trunk line for preventing signals of a particular band (defined by the band stop region of the filter) from entering the feeder line or the trunk line. Note column 25, lines 12-23 and figure 8 of McAlear. It would have been obvious to one of ordinary skill to further modify the system in view of McAlear's teachings by adding a band block filter (i.e. a band stop filter) in the auxiliary feeder line near a junction to the feeder line, in order to prevent signal of a particular frequency band (as specified by the band block filter) from entering the feeder line or the auxiliary feeder line.

8. Claims 46, 47 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art in view of Bodeep et al. (EP 0 695 092 A1) and McAlear (US Pat. 6,598,232).

In regards to claim 46, applicant's prior art cable system includes a feeder line and an auxiliary feeder line extending from the feeder line via a tap, the auxiliary feeder line further including a feeder line end. The prior art system lacks a receiver means and high-to-low converter means at the feeder line end.

Bodeep teaches a method of reducing ingress noise in a cable system by transmitting return signals from a two way communications device to a feeder line end, over a downstream path, in a high frequency band. Note column 6, lines 21-25 in Bodeep et al. The return signals are received at the feeder line end (MFN) where it is filtered, down-converted and re-transmitted back to the cable head end.

It would have been obvious to one of ordinary skill to modify applicant's admitted prior art system with the teachings of Bodeep et al. by transmitting return signals to a feeder line end over a high frequency band, where the feeder line end is further configured to receive, filter, down-converted and retransmit the upstream signals in a previously allocated bandwidth (5-40 MHz) to the cable head end. The motivation is to reduce ingress noise in the return signals.

This modified system lacks an auxiliary feeder line including a band stop filter at the tap that is connected to a feeder line.

McAlear teaches the step of using a band block filter placed on a feeder line near a junction to a trunk line for preventing signals of a particular band (defined by the band stop region of the filter) from entering the feeder line or the trunk line. Note column 25, lines 12-23 and figure 8 of McAlear.

It would have been obvious to one of ordinary skill to further modify the system in view of McAlear's teachings by adding a band block filter (i.e. a band stop filter) in the auxiliary feeder line near a junction to the feeder line, in order to prevent signal of a particular frequency band (as specified by the band block filter) from entering the feeder line or the auxiliary feeder line.

In regards to claim 47, the modified system comprises bi-directional amplifiers in the auxiliary feeder lines (as disclosed by applicant's prior art system).

In regards to claim 49, applicant's prior art cable system includes a feeder line and an auxiliary feeder line extending from the feeder line via a tap, where, the auxiliary feeder line has a feeder line end. The prior art system lacks a receiver means and high-to-low converter means at the feeder line end, a band stop filter in the auxiliary feeder line, a feeder line end configured to receive signals in a notched out frequency band, generate signals in a low frequency band; and a two way communications device for transmitting in a notched out frequency band.

Bodeep teaches a system for reducing ingress noise in a cable system by transmitting return signals from a two way communications device over a downstream path to a feeder line end (MFN) in a high frequency band (B2b). The two-way communication device (end user units) is therefore configured to transmit signals in a high frequency band (B2b). The feeder line end is configured to receive the downstream return signals in the high frequency band

(B2b), and down convert the signals in low frequency band (i.e. generate low frequency band signals). Note column 6, lines 21-25. It would have been obvious to one of ordinary skill to modify applicant's admitted prior art system with the teachings of Bodeep et al. by transmitting return signals over a downstream path, in a high frequency band to a feeder line end in, where it is received, down-converted and retransmitted to the cable head end, in a previously allocated bandwidth (5-40 MHz) to the cable head end. The return signals in the modified system are transmitted in a non-overlapping frequency band with the downstream signals transmitted from the cable head end. The B2b band therefore forms a "notch" above the conventional downstream frequency band. Furthermore, the applicant has not disclosed any specific advantage of "notching" out a portion of the existing downstream frequency band to transmit the upstream signals from the set top boxes, rather than transmitting above the downstream frequency band. Therefore, it would have been a matter of design choice to notch out a portion of the downstream band instead of transmitting at a frequency outside the conventional downstream frequency band, as long as the frequency bands for the upstream and the down stream signals remain mutually exclusive for non-interfering transmission. The two way communication device accordingly is configured to transmit the return signal downstream over the notched out frequency band (B2b), and received by the receiver at the line feeder end at the notched out frequency and down-converted to a lower frequency band.

The modified system lacks a band stop filter in the auxiliary feeder line. McAlear teaches the step of using a band block filter placed on a feeder line near a junction to a trunk line for preventing signals of a particular band (defined by the band stop region of the filter) from entering the feeder line or the trunk line. Note column 25, lines 12-23 and figure 8 of McAlear.

It would have been obvious to one of ordinary skill to further modify the system in view of McAlear's teachings by adding a band block filter (i.e. a band stop filter) in the auxiliary feeder line near a junction to the feeder line, in order to prevent signal of a particular frequency band (as specified by the band block filter) from entering the feeder line or the auxiliary feeder line.

9. Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art in view of Bodeep et al. (EP 0 695 092 A1) as applied to claim 1, above, and further in view of Baran et al. (US Pat. 6,094,211).

The modified cable system lacks a high pass filter between the two-way communication system and the feeder line.

Baran discloses the use of high pass filter on drop cables (which is between feeder line and end user unit)to block low frequency noise coming from the house having TV sets. Note column 2, lines 40-41 and lines 45-50 in Baran et al.It would have been obvious to one of ordinary skill in the art at the time of invention to further modify the system in view of Baran's teachings, by using a high pass filter in the drop cables , between the feeder line and end user unit.

The motivation would be to keep the low frequency ingress noise generated at homes from entering the feeder lines.

In regards to claim 8, the two-way communication device in the modified system is a set top box (as disclosed by applicant's prior art system).

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art in view of Bodeep et al. (EP 0 695 092 A1) and Baran et al. (US Pat. 6,094,211) as applied to claim 4, above, and further in view of McAlear (US Pat. 6,598,232).

In regards to claim 6,the modified system lacks a band stop filter in the auxiliary feeder line. McAlear teaches the step of using a band block filter placed on a feeder line near a junction to a trunk line for preventing signals of a particular band (defined by the band stop region of the filter) from entering the feeder line or the trunk line. Note column 25, lines 12-23 and figure 8 of McAlear.

It would have been obvious to one of ordinary skill to further modify the system in view of McAlear's teachings by adding a band block filter (i.e. a band stop filter) in the auxiliary feeder line near a junction to the feeder line, in order to prevent signal of a particular frequency band (as specified by the band block filter) from entering the feeder line or the auxiliary feeder line.

11. Claims 48 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art in view of Bodeep et al. (EP 0 695 092 A1) and

McAlear (US Pat. 6,598,232) as applied to claims 47 and 49 above, and further in view of Baran et al. (US Pat. 6,094,211).

In regards to claims 48 and 50, the modified system lacks a high pass filter between the feeder lines and the two-way communication device.

Baran discloses the use of high pass filter on drop cables (which is between feeder line and end user unit)to block low frequency noise coming from the house having TV sets. Note column 2, lines 40-41 and lines 45-50 in Baran et al.

It would have been obvious to one of ordinary skill in the art at the time of invention to further modify the system in view of Baran's teachings, by using a high pass filter in the drop cables , between the feeder line and end user unit. The motivation would be to keep the low frequency ingress noise generated at homes from entering the feeder lines.

12. Claims 9-12, 21-25, 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art in view of Bodeep et al. (EP 0 695 092 A1) and Freyman et al. (US Pat. 5,966,410).

In regards to claims 9 and 21, applicant's admitted prior art describes a cable system comprising a head end and a return node connected to a major trunk, including a plurality of feeder lines, wherein each of the feeder lines is connected between a node in the trunk and a feeder line end. The feeder lines include a plurality of bi-directional amplifiers and taps there along, and a two-way communication device (namely a set top box) connected to each of the taps.

The bi-directional amplifiers pass only the signals from head end to the two way communication devices in a high frequency band in the forward direction and pass only the return signals in a low frequency band to head end.

The applicant's admitted prior art lacks a feeder line end including a receiver for receiving transmission in high frequency band and means for converting signals in high frequency band to signals in low frequency band. Furthermore, the prior art system's two-way communication device lacks the capability of both receiving and transmitting signals in a high frequency band. Therefore the prior art cable system is susceptible to high ingress noise levels in the return path arising from the cable drops and other in house wiring.

Bodeep teaches a method of clearing ingress noise in return signals by transmitting the return signals from end user units downstream over a high frequency to a feeder line end. The feeder line end comprises a receiver and converter means, which receives the return signals, down-converts the received signal and retransmits the down-converted signals. The return signals transmitted from the end users are collected at a mini fiber node that is deployed in the furthest downstream location on cable 201 and therefore collected at the line feeder end. A high frequency band B2b, typically above 30MHz is allocated for the return signals, in which the end units transmit the return signals. The end units of Bodeep et al. therefore are capable of receiving signals in high frequency band and transmitting return signals at a "higher frequency" (B2b, above 30MHz) than the conventional low frequency band of 5-40 MHz where majority of the

ingress noise lies. The MFN (feeder line end) receives the return signals, filters out the noise from the return signals, down-converts the return signals and transmits the return signal back to the head end at a previously assigned frequency band, and therefore the low frequency band signals are applied to the corresponding feeder line end, from where they are retransmitted back to the head end. Note reference numbers 262 and 263 in figure 2 and relevant descriptions in column 5, lines 5-22 and line 58 and column 6, lines 1-4 and lines 21-25 of Bodeep et al.

It would have been obvious to one of ordinary skill at the time of invention to modify applicants prior art system with the teachings of Bodeep et al. by configuring the end units to transmit return signals at a higher frequency band, and transmitting the return signals from the end units over a downstream path to a line feeder end, where the return signal is received and filtered to remove ingress noise, down-converted to a previously assigned frequency of 5-40MHz) and re-transmitted back to the head end at that frequency. The motivation would be to improve the prior art cable system by reducing ingress noise generated in taps and subscriber homes by deploying only one ingress-noise filtering system per feeder line, and thereby not having to change the entire coax network (i.e. the bi-directional amplifiers and diplexers in line feeders and trunks of the existing cable system).

The modified system shows transmitting the noise free return signals over a separate transmission path, and therefore lacks transmitting the low frequency band signals along the corresponding bi-directional feeder line.

Freyman discloses the a system for receiving upstream signals in a high frequency band, filtering ingress noise from the upstream signals, frequency shifting the signals to a desired frequency band, and transmitting the signals over a bi-directional coaxial cable. Freyman therefore shows the step of retransmitting noise-free return signals over the corresponding feeder line instead of using a separate transmission path.

It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the system in view of Freyman's teachings, by retransmitting the noise free return signals over the same feeder line, thereby eliminating the cost of an additional transmission path.

In regards to claim 10 and 28, see claim 7.

In regards to claim 11, the line feeder end (mini fiber node) of the modified system has receiver means (the mini fiber node) for receiving signals in high frequency and a transmitter means to re-transmit (generate) the digital upstream signals in low frequency band. Note reference numbers 261 and 265 in figure 2 of Bodeep et al.

In regards to claim 12 and 25, the modified system comprises a frequency conversion module that can up-convert or down-convert the received signals.

Note Bodeep: figure 2, reference numbers 263 and 262 and description in column 6, lines 1-4.

In regards to claim 22, the modified system comprises a head end configured to receive transmission only in low frequency band and feeder lines including bi-directional amplifiers for amplifying transmissions in a high frequency band only in a first direction towards feeder line ends and for amplifying transmissions in low frequency band only in a second direction towards head end (as disclosed by applicant's prior art system).

In regards to claim 23, the modified system comprises bi-directional amplifiers in major trunk for amplifying transmissions in high and low frequency bands in the first and second directions respectively (as disclosed by applicant's prior art system).

In regards to claim 24, the major trunk of the modified system extends from a return node to a trunk end and the return node includes a laser and is connected to head end via a fiber optic cablel(as disclosed by applicant's admitted prior art system).

In regards to claims 29, 30, 31, 32 the end units of the modified system transmit return path signals in a high frequency band, B2b, a frequency band that doesn't overlap with the frequency bands that downstream signals from cable head end are transmitted over. Note Bodeep: figure 2, frequency spectrum and column 6, lines 21-25. Furthermore, applicant does not disclose any specific advantage of "notching" out a portion of the existing downstream frequency band

to transmit the upstream signals from the set top boxes, instead of simply transmitting above the downstream frequency band, therefore it would have been a matter of design choice to "notch" out a portion of the downstream band instead of transmitting at a frequency outside the conventional downstream frequency band, as long as the frequency bands for the upstream and the down stream signals remain mutually exclusive for non-interfering transmission. The end user units (two way communication devices) of the modified system is accordingly configured to receive signals at the notched out downstream signal and to transmit upstream signals in the "notch", Furthermore, the system inherently requires a band stop filter at the line feeder end for only receiving the signals in the B2b band and a band pass filter at the transmitting end for transmitting signals only in the B2b band.

13. Claims 38-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art in view of Bodeep et al. (EP 0 695 092 A1) and Freyman et al. (US Pat. 5,966,410) as applied to claim 9 above, and further in view of Baran et al. (US Pat. 6,094,211).

In regards to claims 38, modified system lacks a high pass filter between the tap and the communication device.

Baran discloses the use of high pass filter on drop cables (which is between feeder line and end user unit) to block low frequency noise coming from the house having TV sets. Note column 2, lines 40-41 and lines 45-50 in Baran et al.

It would have been obvious to one of ordinary skill in the art at the time of invention to further modify the system in view of Baran's teachings, by using a high pass filter in the drop cables, between the feeder line and end user unit. The motivation would be to keep the low frequency ingress noise generated at homes from entering the feeder lines. In regards to claim 39 and 40, the high pass filter is configured to block ingress noises that typically arise in the 5-40 MHz range. The reverse amplifiers pass signals of the 5-40 MHz from the feeder line end to the head end.

In regards to claim 41, the feeder line end of the modified system has down-converting means to receive signals from the communication devices at one frequency and then down-convert it to another frequency band for transmission to the head end in the previously allocated upstream frequency band.

14. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art in view of Bodeep et al. (EP 0 695 092 A1) and Freyman et al. (US Pat. 5,966,410) as applied to claim 21 above, and further in view of McAlear (US Pat. 6,598,232).

In regards to claim 27, see claim 5.

15. Claims 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bodeep et al. (EP 0 695 092 A1) in view of Bodeep (US Pat. 5,864, 672).

In regards to claims 43, Bodeep's cable system employs a uni-directional (202) amplifier and therefore lacks a forward amplifier that carries signals in the

high frequency band and reverse amplifier that carries signal in the low frequency band.

Bodeep discloses that a bi-directional amplifier can be used in the cable system (note column 5, lines 31-33 in the US Pat. 5,864,672It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system in view of Bodeep's teachings to use a bi-directional amplifier, so that the low frequency band up stream can be transmitted back to the head end.

In regards to claim 44, the modified system comprises end user units that are capable of transmitting at a higher frequency (above 30 MHz) than the conventional end units (5-40 MHz), illustrated by B2b in figure 2. Note Bodeep: column 6, lines 21-25. The end user unit of the modified system is not specified to be a set top box. Official notice is taken that set top box is a well known two way communication device such as one that is taught in applicant's admitted prior art. Therefore it would have been obvious to use a set top box as a two-way communication device being able to transmit and receive signals in a high frequency band. The motivation would be to reduce ingress noise in the return path and provide increased upstream bandwidth for television users.

16. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bodeep et al. (EP 0 695 092 A1) in view of Bodeep (US Pat. 5,864, 672) as applied to claim 44 above, and further in view of Baran et al. (US Pat. 6,094,211).

In regards to claim 45, the modified cable system as described in claim 44 lacks a high pass filter between the two-way communication system and the feeder line.

Baran discloses the use of high pass filter on drop cables (which is between feeder line and end user unit) to block low frequency noise coming from the house having TV sets. Note column 2, lines 40-41 and lines 45-50 in Baran et al.

It would have been obvious to one of ordinary skill in the art at the time of invention to further modify the system in view of Baran's teachings, by using a high pass filter in the drop cables, between the feeder line and end user unit. The motivation would be to keep the low frequency ingress noise generated at homes from entering the feeder lines.

Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Usha Raman whose telephone number is (703) 305-0376. The examiner can normally be reached on Mon-Fri: 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Faile can be reached on (703) 305-4380. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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